

Highway maintenance activities for controlling snow and ice include snow removal, drift prevention, avalanche control, and snow pole installation and removal. Snow and ice control also includes spreading road abrasives and deicing agents, and opening drains covered by snow and ice. The application of deicing agents is based on driver safety, costs, location, traffic delays, and the environment.

The materials used for snow and ice control may adversely impact receiving waters if not properly managed. Deicing agents include chemical agents and salt. Road abrasives include sand and cinders. Best management practices (BMPs) have been developed to reduce the discharge of these potential pollutants to the storm water drainage system. These BMPs are included in the Caltrans Storm Water Quality Handbooks, Maintenance Staff Guide, under BMP R1.



Equipment Management

The following equipment cleaning procedures will aid in preventing discharges of potential pollutants to the storm water drainage system:

- Equipment used to apply deicing agents should be washed at an area that discharges to the sanitary sewer system or water recovery system if practical and available. It is best to avoid allowing rinse water from the washout of deicing agents to flow down the storm drainage system. The agents mix or dissolve with the rinse water and are not trapped by oil-water separators or sediment barriers.
- Rinsing off abrasives should be conducted at a pre-wash area. It is recommended that this area be designated for exterior wash only and that detergents are not used. The exterior wash area should be paved and have some mechanisms in place to contain the sediment washed off the equipment. The wash area could be sloped to keep the sediment inside or direct the effluent to a sump. A berm could be installed around the wash area to contain sediment.
- Sediment in the exterior wash area should be removed from the wash area frequently, using manual methods such as sweeping or shoveling; or by mechanical methods such as using the sweeper.

- Detergent-free rinse water used for exterior wash can be allowed to flow down the storm drain as long as sediment is contained. Methods for sediment trapping include silt fences, straw bale barriers, and sand bag barriers.

Note: Be careful not to create an ice patch.

Storage Practices

Exposure of snow and ice control materials to rain/snow should be minimized using the following procedures:

- Store abrasives in covered stockpiles, where possible, to prevent a frozen crust from forming on the top of the pile and to minimize sediment runoff.
- Store deicing agents in covered areas, bunkers, or storage buildings.
- Do not store abrasives or deicing agents near drain inlets or where they will encounter storm water runoff.
- Consider installing a low AC berm at the entrance of the sand or salt storage area to avoid tracking across the Maintenance yard.

Other Operational Procedures

- Maintain accurate records of locations and quantities of deicing agents applied.
- Routinely calibrate spreading equipment.
- Where possible, avoid blowing or pushing ice, snow, abrasives, deicing agents, or other debris into watercourses, the storm water drainage system, or where drain inlets can be blocked.
- Use washed or screened abrasives when possible to reduce the amount of silts and clays (fine powders) applied to the roadway.
- Use safer alternative products if practical and effective, especially when near sensitive watercourses. An example is calcium magnesium acetate (CMA) which has been used instead of salt in some sensitive areas.
- Perform a pre-operational inspection of vehicles and equipment for fuel or oil leaks prior to leaving the facility.
- Sweep up the Maintenance facility frequently.
- Clean up excess or spilled deicing agents and abrasives promptly.



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Storm Water Management for Snow and Ice Control Activities



Additional information is available in the Caltrans Maintenance Manual, Chapter C-6, or from your District Maintenance Storm Water Coordinator. Questions or comments may be directed to Jack Broadbent, Maintenance Storm Water Coordinator, (916) 653-0361